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PERKINS COIE LLP P.O. BOX 2168 MENLO PARK, CA 94026			EXAMINER COLIN, CARL G	
			ART UNIT 2136	PAPER NUMBER

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/459,493	Applicant(s) RUBIN ET AL.	
	Examiner Carl Colin	Art Unit 2136	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 - 14, 16 - 27, 29 - 36, 38 - 53, 55 - 66 and 68 - 80 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 - 14, 16 - 27, 29 - 36, 38 - 53, 55 - 66 and 68 - 80 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/6/2006 has been entered.

Response to Arguments

2. In response to communications filed on 9/6/2006, Applicant has amended claims 1, 3-8, 10-14, 16-18, 21, 23-27, 29-32, 34-36, 38-41, 43-53, 55-60, 62-66, 68-70, 75, 77-80; the following claims 1, 3 - 14, 16 - 27, 29 - 36, 38 - 53, 55 - 66 and 68 - 80 are presented for examination.

2.1 Applicant's arguments, filed on 9/6/2006, with respect to the rejection of claims 1, 3 - 14, 16 - 27, 29 - 36, 38 - 53, 55 - 66 and 68 - 80 have been fully considered, but they are not persuasive. Applicant argues that Dwin does not disclose modifying least significant bits of displayed information. It is noted that the claims as amended are not directed to modifying least significant bits of displayed information because as recited in the claims the modifying of least significant bits takes place prior to the pixel color data being received by the video RAM meaning before it is displayed on the screen. In response to Applicant's statement of amending

Art Unit: 2136

pixel color data to pixel “color” data to clearly distinguish Dwin from the claimed invention, the added limitation does not patentably distinguish the claim from the prior art because of prior art admission by Applicant on page 13, lines 4-5 of applicant’s specification which clearly states, “Typically, pixel color data includes one or more color components”. Therefore, the pixel color data of Dwin implicitly or inherently include one or more color components. Applicant argues that Dwin does not disclose “modifying least significant bits of stored pixel color data prior to its being received by the video RAM thereby generating modified pixel color data within which individual pixel locations are recognizable as having protected or unprotected pixel color datum based on values of least significant bits of the pixel color datum without comparison to a template of pixel locations” as recited in amended claim 27 and other independent claims. Examiner respectfully disagrees because as understood by the Examiner, Dwin discloses writing the pixels of the frame buffer (RAM) are modified according to the protected pixel color data in the lock buffer memory so that when the image of the frame buffer is captured, the bits that are protected are recognizable since the related data representing the image is stored in the lock buffer (see column 7, lines 37-45 and claims 1 and 6). And as an alternative as explained in the last Office action, Dwin also discloses modifying least significant bits of protected pixel color data as recited for instance in claim 53. Upon further consideration, claims 1, 3-14, 16-27, 29-36, 38-53, 55-66, and 68-80 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Mast in view of Dwin.

Claim Rejections - 35 USC § 103

Art Unit: 2136

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-14, 16-27, 29 - 36, 38-53, 55-66, and 68-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,881,287 to **Mast** in view of US Patent 5,986,676 to **Dwin et al.**

As per claim 1, Mast substantially teaches a method for protecting digital images from being copied from a video RAM, (see column 3, lines 25-34 and column 9, lines 60-67). **Mast** discloses the step of transmitting stored pixel color data from a computer memory to a video RAM (column 3, lines 25-57). As defined in the dictionary, the pixels are the basic units of the composition of the image disclosed by **Mast**. **Mast** also discloses the step of identifying protected image within the image in memory that meets the recitation of identifying the protected pixel color data within the stored pixel color data (see column 3, lines 30-49; and lines 49-57; and column 10, lines 57-61). **Mast** discloses in prior art (columns 1-3) many examples of modifying pixel color data prior to arrival at the video RAM. **Mast** further discloses the steps of

Art Unit: 2136

modifying pixel color data by encryption before transmitting to end users, prior to its being received by the video RAM, thereby generating modified pixel color data within which individual pixel color datum is recognizable as being protected or unprotected (see column 7, lines 34-47); and after instruction to copy pixel color data from the video RAM, replacing individual pixel datum that is recognized as being protected, with substitute pixel color datum (column 3, lines 30-49, column 9, lines 59 et seq., and column 10, line 53 through column 11, line 1). **Mast** discloses that encryption fails to protect pixel color data within the video memory because of the need to be displayed (see column 1, lines 62-66). **Mast** discloses that prior art technique may be applied to provide protection of data until displayed and the present invention will continue to provide security for data transfer request being in the video memory and teaches means of preventing copying of images stored in the picture store of the video display (see abstract and column 3, lines 25-58). **Mast** combines encryption technique as an example of prior art protection prior to placing the image in the video memory with his inventive features of providing image display protection including preventing copying of image from the screen to protect the image from theft. **Mast** mentions that other prior art utilizes masking of portions of visual output but fails to design for security purposes (column 2, lines 13-25). **Mast** does not explicitly disclose prior art technique using least significant bits technique for providing protection of pixel color data. However, **Dwin et al** in an analogous art discloses a technique for protecting displayed information by modifying the least significant bit to generate control data (see column 8, lines 45-62) and further teaches reading protection data in the lock buffer (non-display section) to determine location in the frame buffer (video memory) where information can be written and ultimately on the display screen (column 3, lines 30-46), which meets the

recitation of modifying least significant bits of stored pixel color data prior to it's being received by the video RAM, (see also column 7, lines 38-61 and column 8, lines 15-35 and lines 45-63; column 5, lines 22-28; and claims 1 and 6). There is suggestion that an alternative to storing the entire frame buffer image (display image) would be to store data representing only the information to be protected in the lock buffer (non-display memory) (column 7, lines 45-48) and discloses "once the lock data is placed in the lock buffer, subsequently writing into the frame buffer (video memory) is controlled by the contents of the lock buffer; protection data is read in the lock buffer and control signal is generated to write data in the frame buffer section, because data to be protected is identified and is already protected, it is obvious that setting of the bits can be applied before writing into the frame buffer. "The specific structure of information shown in the frame buffer is only an example and it is well known within the skill of the art to provide different arrangements of the data" (column 7, lines 25-37). **Dwin et al** further discloses recognizing individual pixel datum as being protected or unprotected based on the least significant bits of the pixel color datum without comparison to a template of pixel locations, for example (see column 7, lines 45-61 and column 8, lines 15-35 column 5, lines 22-28) with the advantage that it enables to know which location of the data to be displayed must be protected by setting all the protect bits corresponding to the pixels in the destination for the object (see column 8, lines 14-35 and lines 45-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of **Mast** by modifying least significant bits of stored pixel color data prior to its being received by the video RAM and recognizing individual pixel datum as being protected or unprotected based on the least significant bits of the pixel color as taught by **Dwin et al.** (see column 7, lines 10-40). One

Art Unit: 2136

skilled in the art would have been motivated to do so because Mast suggests having the image present in the video memory unprotected is susceptible to piracy and one of ordinary skill of the art would have been motivated to utilize the method of **Dwin et al** of modifying the bits before the image is present in the video memory so it is not susceptible to piracy when it is displayed as suggested by **Mast**. Contrarily to some prior art that provides protection only before displaying data as mentioned in Mast, **Dwin et al** also provides the advantage where data to be displayed and data currently displayed can remain protected by modifying significant pixels to provide control and identification of data locations that need to be protected before displaying on the screen, wherein any portion of the screen may be so protected using a lock protect bit that corresponds to any pixel color data that needs to be protected (see column 7, lines 38-61 and column 8, lines 14-35, 45-67), selected areas of the screen can be protected against overwriting (column 7, lines 34-38).

As per claims 3, 29, and 55, **Dwin et al.** discloses wherein pixel color data includes red, green, and blue color components said modifying sets the least significant bits within any pixel color data of any color that meets the recitation of limitation of wherein pixel color data includes red, green, and blue color components and wherein, said modifying sets the least significant bits within pixel color data of the blue components, such modification is also well known in the art the (see column 6, lines 9-41). These claims are therefore rejected on the same rationale as the rejection of claim 1 above.

As per claim 4, **Mast** substantially discloses rendering pixel color data in video RAM on a video display device, (see column 1, lines 40-47).

As per claims 5, 30, and 56, Dwin et al. discloses the limitation of rendering pixel color data that is visually similar to the stored pixel color data when rendered on a video display device, for example (see column 7, lines 25-61). These claims are therefore rejected on the same rationale as the rejection of claim 1 above.

As per claim 6, Mast discloses the limitation of wherein the pixel color data is copied from the video RAM by a screen capture command (column 10, lines 52-66 and columns 11-12).

As per claim 7, Mast discloses the limitation of wherein the pixel color data is copied from the video RAM by command to copy screen data to a clipboard (column 10, lines 52-66 and columns 11-12).

As per claims 8, 32, and 60, Mast discloses the limitation of wherein the protected pixel color data is pixel color data for at least one protected digital image (see fig. 8 and column 10, line 52 through column 12).

As per claim 9, Mast substantially teaches the claimed method of claim 8. **Mast** discloses sending protected image to end user but does not specifically disclose downloading the at least one protected image over the Internet, which is well known in the art.

Art Unit: 2136

As per claims 12 and 34, Mast discloses the limitation of wherein the stored pixel color data is encrypted pixel color data (see column 7, lines 20-47).

As per claims 13 and 35, Mast discloses the limitation of decoding encrypted stored pixel color data (see column 9, lines 8-20).

As per claim 10, Mast discloses the limitation of wherein the stored pixel color data is encrypted pixel color data (see column 7, lines 20-47). **Mast** further discloses that the image files are protected from misappropriation with some form of encryption and suggests to use other encryption schemes than the one disclosed (see column 7, lines 40-47). Therefore, it is apparent to one of ordinary skill in the art, as an encryption scheme, to have the substitute pixel datum encrypted to indicate that they are protected images.

As per claim 11, Mast discloses the limitation of decoding encrypted pixel color data (see column 9, lines 8-20).

As per claim 14, Mast teaches the limitations of claim 14 using a method and an apparatus in a computer system (see column 4, lines 19-28). **Claim 14** recites the same limitation as the rejected claim 1 except for incorporating the claimed methods into a system. A computer system has data buses to transfer data for storage, a digital filter to identify and modify pixel color data, and processors to replace or copy information to memory. It is apparent to one skilled in the art that the method disclosed by **Mast** can be applied in a system.

Claims 16, 38, and 68 are similar to the rejected **claim 3** except for incorporating the claimed method into a system. Therefore, **claims 16, 38, and 68** are rejected on the same rationale as the rejection of **claim 3**.

As per **claim 17**, **Mast** discloses the claimed system of claim 14. **Claim 17** is similar to the rejected **claim 4**. Therefore, **claim 17** is rejected on the same rationale as the rejection of **claim 4**.

Claims 18, 40, and 70 are similar to the rejected **claim 5** except for incorporating the claimed method into a system. Therefore, **claims 18, 40, and 70** are rejected on the same rationale as the rejection of **claim 5**.

As per **claim 19**, **Mast** discloses the claimed system of claim 14. **Claim 19** recites the limitation of wherein said first data bus and said second data bus are distinct data busses. It is apparent to one skilled in the art that a computer system has distinct data buses to transfer data for storage (see column 4, lines 19-28).

As per **claim 20**, **Mast** discloses the claimed system of claim 14. **Claim 20** recites the limitation of wherein said first data bus and said second data bus are the same data bus. The fact of using the same data bus instead of two distinct data buses may reduce cost. However, having one bus may slow down the process of transmitting data, and furthermore, it does not provide

Art Unit: 2136

any backup if the bus fails. It is apparent to one skilled in the art that a computer system is capable of using either the same bus or distinct data buses (see column 4, lines 19-28).

Claims 21, 41, and 75 are similar to the rejected **claim 8** except for incorporating the claimed method into a system. Therefore, **claims 21, 41, and 75** are rejected on the same rationale as the rejection of **claim 8**.

Claims 22, 42, and 76 are similar to the rejected **claim 9** except for incorporating the claimed method into a system. Therefore, **claims 22, 42, and 76** are rejected on the same rationale as the rejection of **claim 9**.

As per claims 23-26, Mast discloses the claimed system of claim 14. **Claims 23-26** are similar to the rejected **claims 10-13** respectively. Therefore, **claims 23-26** are rejected on the same rationale as the rejection of **claims 10-13**.

As per claim 27, claim 27 contains the limitations of the rejected claim 1, claim 27 is broader than claim 1 for not reciting the replacing step of claim 1. Therefore, **claim 27** is rejected on the same rationale as the rejection of **claim 1**.

Claims 31 and 57 are similar to the rejected **claim 5**. Therefore, **claims 31 and 57** are rejected on the same rationale as the rejection of **claim 5**.

Claims 33 and 61 are similar to the rejected **claim 9**. Therefore, **claims 33 and 61** are rejected on the same rationale as the rejection of **claim 9**.

As per **claim 36**, **Mast** substantially teaches the limitations of claim 36 using a method and an apparatus in a computer system (see column 4, lines 19-28). **Claim 36** recites the same limitation as the rejected claim 27 except for incorporating the claimed method into a system. A computer system has data buses to transfer data for storage and a digital filter to identify and modify pixel color data. It is apparent to one skilled in the art that the method disclosed by **Mast** can be applied in a system.

Claims 39 and 69 are similar to the rejected **claim 4** except for incorporating the claimed method into a system. Therefore, **claims 39 and 69** are rejected on the same rationale as the rejection of **claim 4**.

Claims 43 and 79 are similar to the rejected **claim 12** except for incorporating the claimed method into a system. Therefore, **claims 43 and 79** are rejected on the same rationale as the rejection of **claim 12**.

Claims 44 and 80 are similar to the rejected **claim 13** except for incorporating the claimed method into a system. Therefore, **claims 44 and 80** are rejected on the same rationale as the rejection of **claim 13**.

As per claim 45, **Mast** substantially teaches a method for protecting pixel color data located in a video RAM from being copied. **Mast** also discloses replacing protected pixel color data with substitute pixel color data, after instruction to copy pixel color data from the video RAM (see column 3, lines 30-49, column 9, lines 59 et seq., and column 10, line 53 through column 11, line 1). (See also column 2, lines 13-25). **Mast** discloses that encryption fails to protect pixel color data within the video memory because of the need to be displayed (see column 1, lines 62-66). **Mast** discloses that prior art technique may be applied to provide protection of data until displayed and the present invention will continue to provide security for data transfer request being in the video memory and teaches means of preventing copying of images stored in the picture store of the video display (see abstract and column 3, lines 25-58). **Mast** combines encryption technique with the present invention as an example of prior art protection prior to placing the image in the video memory. **Mast** mentions that other prior art utilizes masking of portions of visual output but fails to design for security purposes (column 2, lines 13-25). **Mast** does not explicitly disclose prior art technique using least significant bits technique for providing protection of pixels data. However, **Dwin et al** in an analogous art discloses a technique for protecting displayed information by modifying the least significant bit to generate control data (see column 8, lines 45-62) and further teaches reading protection data in the lock buffer (non-display section) to determine location in the frame buffer (video memory) where information can be written and ultimately on the display screen (column 3, lines 30-46), which meets the recitation of modifying least significant bits of stored pixel color data prior to it's being received by the video RAM, (see also column 7, lines 38-61 and column 8, lines 15-35 and lines 45-63; column 5, lines 22-28; and claims 1 and 6). There is suggestion that an

Art Unit: 2136

alternative to storing the entire frame buffer image (display image) would be to store data representing only the information to be protected in the lock buffer (non-display memory) (column 7, lines 45-48) and discloses “once the lock data is placed in the lock buffer, subsequently writing into the frame buffer (video memory) is controlled by the contents of the lock buffer; protection data is read in the lock buffer and control signal is generated to write data in the frame buffer section, because data to be protected is identified and is already protected, it is obvious that setting of the bits can be applied before writing into the frame buffer. “The specific structure of information shown in the frame buffer is only an example and it is well known within the skill of the art to provide different arrangements of the data” (column 7, lines 25-37). **Dwin et al** further discloses recognizing individual pixel color datum as being protected or unprotected based on the least significant bits of the pixel color datum without comparison to a template of pixel locations, for example (see column 7, lines 45-61 and column 8, lines 15-35 column 5, lines 22-28) with the advantage that it enables to know which location of the data to be displayed must be protected by setting all the protect bits corresponding to the pixels in the destination for the object (see column 8, lines 14-35 and lines 45-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of **Mast** by modifying least significant bits of stored pixel color data prior to its being received by the video RAM and recognizing individual pixel color datum as being protected or unprotected based on the least significant bits of the datum as taught by **Dwin et al.** (see column 7, lines 10-40). One skilled in the art would have been motivated to do so because **Mast** suggests having the image present in the video memory unprotected is susceptible to piracy and one of ordinary skill of the art would have been motivated to utilize the method of **Dwin et al** of

Art Unit: 2136

modifying the bits before the image is present in the video memory so it is not susceptible to piracy when it is displayed as suggested by **Mast**. Contrarily to some prior art that provides protection only before displaying data as mentioned in Mast, **Dwin et al** also provides the advantage where data to be displayed and data currently displayed can remain protected by modifying significant pixels to provide control and identification of data locations that need to be protected before displaying on the screen, wherein any portion of the screen may be so protected using a lock protect bit that corresponds to any pixel color data that needs to be protected (see column 7, lines 38-61 and column 8, lines 14-35, 45-67), selected areas of the screen can be protected against overwriting (column 7, lines 34-38).

As per claim 46, Mast discloses the limitation of wherein the pixel color data is copied from the video RAM by a screen captured command (column 10, lines 52-66 and columns 11-12).

As per claim 47, Mast discloses the limitation of wherein the pixel color data is copied from the video RAM by command to copy screen data to a clipboard (column 10, lines 52-66 and columns 11-12).

As per claim 48, Mast discloses the limitation of wherein the stored pixel color data is encrypted pixel color data (see column 7, lines 20-47). **Mast** further discloses that the image files are protected from misappropriation with some form of encryption and suggests to use other encryption schemes than the one disclosed (see column 7, lines 40-47). Therefore, it is apparent

Art Unit: 2136

to one of ordinary skill in the art, as an encryption scheme, to have the substitute pixel color datum encrypted to indicate that they are protected images.

As per claim 49, Mast discloses the limitation of decoding encrypted pixel color data (see column 9, lines 8-20).

As per claim 50, Mast teaches the limitations of **claim 50** using a method and an apparatus in a computer system (see column 4, lines 19-28). **Claim 50** recites the same limitation as the rejected claim 45 except for incorporating the claimed methods into a system comprising a data bus and a pixel processor. A computer system has data buses to transfer data for storage, and processors to replace individual pixel color datum. It is apparent to one skilled in the art that the method disclosed by **Mast** can be applied in a system.

Claim 51 is similar to the rejected **claim 10** except for incorporating the claimed method into a system. Therefore, **claim 51** is rejected on the same rationale as the rejection of **claim 10**.

Claim 52 is similar to the rejected **claim 11** except for incorporating the claimed method into a system. Therefore, **claim 51** is rejected on the same rationale as the rejection of **claim 11**.

As per claim 53, Mast substantially teaches a method for protecting digital images from being copied from a video RAM. **Mast** discloses the steps of modifying the stored pixel color data so as to mark it as being protected and thereafter transmitting stored pixel color data

Art Unit: 2136

including the modified protecting pixel color data from a computer memory to a video RAM (see column 7, lines 34-47 see column 3, lines 10-14; column 2, lines 13-25). (See also prior art columns 1-3). **Mast** also discloses the step of identifying protected image within the image in memory that meets the recitation of identifying the protected pixel color data within the stored pixel color data (see column 3, lines 30-49 and column 10, lines 57-61); and in response to pixel color data being copied from the video RAM, replacing individual pixel color datum copied from the video RAM, that is protected, with substitute pixel color datum (column 3, lines 30-49, column 9, lines 59 et seq., and column 10, line 53 through column 11, line 1); and discloses after instruction to copy pixel color data from the video RAM, replacing individual pixel color datum that is recognized as being protected, with substitute pixel color datum without comparison to a template of pixel locations (column 3, lines 30-49, column 9, lines 59 et seq., and column 10, line 53 through column 11, line 1). **Mast** discloses that encryption fails to protect pixel color data within the video memory because of the need to be displayed (see column 1, lines 62-66). **Mast** discloses that prior art technique may be applied to provide protection of data until displayed and the present invention will continue to provide security for data transfer request being in the video memory and teaches means of preventing copying of images stored in the picture store of the video display (see abstract and column 3, lines 25-58). **Mast** combines encryption technique with the present invention as an example of prior art protection prior to placing the image in the video memory. **Mast** mentions that other prior art utilizes masking of portions of visual output but fails to design for security purposes (column 2, lines 13-25). **Mast** does not explicitly disclose prior art technique using least significant bits technique for providing protection of pixels data. However, **Dwin et al** in an analogous art discloses a technique for

protecting displayed information by modifying the least significant bit to generate control data (see column 8, lines 45-62) and further teaches reading protection data in the lock buffer (non-display section) to determine location in the frame buffer (video memory) where information can be written and ultimately on the display screen (column 3, lines 30-46), which meets the recitation of modifying least significant bits of stored pixel color data prior to it's being received by the video RAM, (see also column 7, lines 38-61 and column 8, lines 15-35 and lines 45-63; column 5, lines 22-28; and claims 1 and 6). There is suggestion that an alternative to storing the entire frame buffer image (display image) would be to store data representing only the information to be protected in the lock buffer (non-display memory) (column 7, lines 45-48) and discloses "once the lock data is placed in the lock buffer, subsequently writing into the frame buffer (video memory) is controlled by the contents of the lock buffer; protection data is read in the lock buffer and control signal is generated to write data in the frame buffer section, because data to be protected is identified and is already protected, it is obvious that setting of the bits can be applied before writing into the frame buffer. "The specific structure of information shown in the frame buffer is only an example and it is well known within the skill of the art to provide different arrangements of the data" (column 7, lines 25-37). **Dwin et al** further discloses recognizing individual pixel color datum as being protected or unprotected based on the least significant bits of the pixel color datum without comparison to a template of pixel locations, for example (see column 7, lines 45-61 and column 8, lines 15-35 column 5, lines 22-28) with the advantage that it enables to know which location of the data to be displayed must be protected by setting all the protect bits corresponding to the pixels in the destination for the object (see column 8, lines 14-35 and lines 45-67). Therefore, it would have been obvious to one of

Art Unit: 2136

ordinary skill in the art at the time the invention was made to modify the method of **Mast** by modifying least significant bits of stored pixel color data prior to its being received by the video RAM and recognizing individual pixel color datum as being protected or unprotected based on the least significant bits of the datum as taught by **Dwin et al.** (see column 7, lines 10-40). One skilled in the art would have been motivated to do so because **Mast** suggests having the image present in the video memory unprotected is susceptible to piracy and one of ordinary skill of the art would have been motivated to utilize the method of **Dwin et al** of modifying the bits before the image is present in the video memory so it is not susceptible to piracy when it is displayed as suggested by **Mast**. Contrarily to some prior art that provides protection only before displaying data as mentioned in **Mast**, **Dwin et al** also provides the advantage where data to be displayed and data currently displayed can remain protected by modifying significant pixels to provide control and identification of data locations that need to be protected before displaying on the screen, wherein any portion of the screen may be so protected using a lock protect bit that corresponds to any pixel color data that needs to be protected (see column 7, lines 38-61 and column 8, lines 14-35, 45-67), selected areas of the screen can be protected against overwriting (column 7, lines 34-38).

Claims 58-59 are similar to the rejected **claims 6-7** respectively. Therefore, **claims 58-59** are rejected on the same rationale as the rejection of **claims 6-7**.

Claims 62-63 are similar to the rejected **claims 10-11** respectively. Therefore, **claims 62-63** are rejected on the same rationale as the rejection of **claims 10-11**.

As per claim 64, Mast discloses the limitation of wherein the protected pixel color data is encrypted pixel color data (see column 7, lines 20-47).

As per claim 65, Mast discloses the limitation of decoding encrypted stored pixel color data (see column 9, lines 8-20).

As per claim 66, Mast teaches the limitations of **claim 66** using a method and an apparatus in a computer system (see column 4, lines 19-28). **Claim 66** recites the same limitation as the rejected claim 53 except for incorporating the claimed methods into a system comprising a data bus and a pixel processor. A computer system has data buses to transfer data for storage, and processors to modify and replace pixel color data. It is apparent to one skilled in the art that the method disclosed by **Mast** can be applied in a system.

As per claim 71, Mast discloses the claimed system of claim 66. **Claim 71** recites the limitation of wherein said first data bus and said second data bus are distinct data busses. It is apparent to one skilled in the art that a computer system has distinct data buses to transfer data for storage (see column 4, lines 19-28).

As per claim 72, Mast discloses the claimed system of claim 66. **Claim 72** recites the limitation of wherein said first data bus and said second data bus are the same data bus. The fact of using the same data bus instead of two distinct data buses may reduce cost. However, having

Art Unit: 2136

one bus may slow down the process of transmitting data and furthermore it does not provide any backup if the bus fails. It is apparent to one skilled in the art that a computer system is capable of using either the same bus or distinct data buses (see column 4, lines 19-28).

As per claim 73, Mast discloses the claimed system of claim 66. **Claim 73** recites the limitation of wherein said first pixel processor and said second pixel processor are distinct processors. It is apparent to one skilled in the art that a computer system may have distinct processors for different tasks (see also column 4, lines 19-28).

As per claim 74, Mast discloses the claimed system of claim 66. **Claim 74** recites the limitation of wherein said first pixel processor and said second pixel processor are the same processors. The fact of using the same processor instead of two distinct processors may reduce cost. It is apparent to one skilled in the art to have a system using a CPU as a processor to perform all the tasks. It is apparent to one skilled in the art that a computer system is capable of using either the same processor or distinct processors (see also column 4, lines 19-28).

As per claim 77, Mast discloses the claimed system of claim 66 and further discloses the limitation of wherein the stored pixel color data is encrypted pixel color data (see column 7, lines 20-47). **Mast** further discloses that the image files are protected from misappropriation with some form of encryption and suggests to use other encryption schemes than the one disclosed (see column 7, lines 40-47). Therefore, it is apparent to one of ordinary skill in the art, as an

Art Unit: 2136

encryption scheme, to have the substitute pixel color datum encrypted to indicate that they are protected images.

As per claim 78, Mast discloses the claimed system of claim 66 and further discloses the limitation of decoding encrypted pixel color data (see column 9, lines 8-20).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These patents disclose modifying individual pixel color datum thereby recognizing individual pixel datum as being protected.

US Patents : 6,661,904 Sasich et al ; 6,664,969 Emerson et al ; 6,038,031 Murphy.

4.1 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl Colin whose telephone number is 571-272-3862. The examiner can normally be reached on Monday through Thursday, 8:00-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser G. Moazzami can be reached on 571-272-4195. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Art Unit: 2136

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

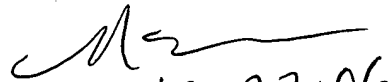
cc

Carl Colin

Patent Examiner

October 26, 2006

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10/27/06